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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/833,620	04/07/1997	MICHAEL S. DOBBINS	15275/8610(D)	2784

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EXAMINER

HOFFMANN, JOHN M

ART UNIT PAPER NUMBER

1731

DATE MAILED: 11/27/2001

39

Please find below and/or attached an Office communication concerning this application or proceeding.

remained

Office Action Summary

Application No.

08/833,620

Applicant(s)

DOBBINS ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 13, 22 and 33-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-13, 22, 33-44, 46-47 and 49-53 is/are rejected.
- 7) ☒ Claim(s) 45 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Application is has been reopened for prosecution after the filing of an Appeal Brief. Oral approval for reopening was given by SPE Silverman on 11/02/2001 during the appeal conference.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 39-40, 49-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's supplied translation of Kawaguchi JP 138145 (hereinafter referred to as '145).

Case law. When the compound is not specifically named, but instead it is necessary to select portions of teachings within a reference and combine them, e.g., select various substituents from a list of alternatives given for placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well-delineated. Ex parte A, 17 USPQ2d 1716 (Bd. Pat. App. & Inter. 1990). If one of ordinary skill in the art is able to 'at once envisage' the specific compound within the generic chemical formula, the compound is anticipated. One of ordinary skill in the art must be able to draw the

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structural formula or write the name of each compounds included in the generic formula before any of the compounds can be "at once envisaged". One may look to the preferred embodiments to determine which compounds can be anticipated. In re Petering, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

'145 does not specifically name the subgenus "polymethylcyclsiloxane" But all of the other limitations are taught - for example at figure 1. It is deemed that the above case law also applies to a claimed subgenus when only a genus is sufficiently limited or well delimited. In '145, page 6, line 20 first limits teaches the genus, "siloxanes. The on line 21, further limits (by a formula) it to a specific type of siloxane. And on lines 22-24, the compound is still further limited. The R as a methyl group is mentioned specifically at lines 10-12. It is deemed that the teachings are such that the claimed subgenus of polymethylcyclsiloxanes is at once envisaged.

By fact that the methyl group is taught, '145 clearly anticipates polymethylsiloxanes. By fact that '145 uses the language that y is "not higher than $2x + 2$ ", one of ordinary skill is immediately put on notice that "y" (of the $Si_xR_yO_z$ formula) can be less than $2x + 2$. One who is handy with such chemical formulas would immediately recognize that this refers to a cyclic structure: a siloxane backbone (i.e. alternating O and Si) has two radicals off of each Si atom - except for the any Si on the end. A Si - atom on the end of a chain would have 3 radicals. To look at it mathematically, # of radicals = (# of Si-atoms) x 2 + the 2 end radicals (i.e. one on either end). Thus the " $2x + 2$ " value. But when one tries to reduce y (i.e. the number of

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radicals R) to be less than $2x+2$, the only option available is a cyclic siloxane (i.e. removal of the 2 end radicals).

Alternatively there are only three types of methylsiloxanes: linear, branched and cyclic. Thus this genus is "sufficiently limited to" only three possible types of siloxanes, thus one of ordinary skill readily envisages the subgenus cyclosiloxane form of the methylsiloxanes.

As to claim 40, page 6, line 22-23 indicates that the number of silicon atoms is "2 or higher". Thus one of ordinary skill would immediately envision the "or higher" chains. Such as those presently claimed.

Claim Rejections - 35 USC § 103

Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over '145.

Page 6 of '145 teaches to use oxygen in the stream. It would have been obvious to use air as the oxygen since it is the cheapest form of oxygen. Air has nitrogen.

Claims 12, 13, 22, 33-38, 43-44, 46-47 and 53 as well as claims 39-42 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller 4501602 in view of Schwarz EP0038900 and optionally in view of Hyde 2272342 and/or JP 138145 ('145)

Miller teaches the invention substantially at col. 1, lines 10-31. This is a method of making soot along with further processing to make a complete glass body (See Claim 1 and figure 4 of Miller). Col. 12, line 3-8 essentially discloses that Miller's invention is an improvement of that col. 1 process. Miller also teaches that it is known that other silicon compounds can be used (col.1, lines 32-41), however, silicon tetrachloride is clearly favored by Miller.

Schwarz teaches to substitute siloxanes for the tetrachloride in the production of silica soot because: (1) such is free of chlorine and (2) absence of the need to get rid of acid (Page 3, lines 3-9). It would have been obvious to alter the steps that Miller uses to make soot by using one of the Schwarz cyclosiloxanes for the advantages of Schwarz. It is noted that Schwarz's second advantage is essentially the same as Applicant's advantage (page 3, 1st paragraph).

Hyde is cited because it discloses that for over 60 years it has been known that one can use any hydrolyzable compound in making silica soot (page 2, lines 34-37).

'145 is cited as documenting a reasonable expectation of success for making a high quality optical silica glass using a cyclosiloxane (see entire document and most particularly - page 6, lines 7-26). Although no cyclosiloxane is explicitly mentioned, one looking at '145 would at once envisage the cyclosiloxanes. Specifically the Six Ry Oz compound. Small values of x would be envisioned (i.e. 2,3,4). R = methyl would be envisioned because it is disclosed in the hexamethyldisiloxane and it is a very simple alkyl. One would envision Y to be a value less than $2x + 2$ (otherwise the phrase "not higher than $2x + 2$ " would be replaced with "is $2x+2$ ". And if Y is less than $2x + 2$, the

compound is a cyclosiloxane - because there is no other appropriate structure for a siloxane with fewer than $2x+2$ monovalent hydrocarbon groups as required by '145.

As to claims 33-38, see Schwarz, page 3, line 4.

All of the other claims are met as per discussed above: i.e. it would have been obvious to use air as the oxygen source because it is free. As to the specific siloxane of claims 51-53, if the Schwarz disclosure of only 3 (maybe 4) useable siloxanes isn't a sufficient teaching to use the specific compound, then it would have been obvious to perform routine experimentation to determine the best siloxane to use.

Allowable Subject Matter

Claims 45 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 45 and 48 require the use of a halide compound. There is no teaching or motivation in the prior art to use a halide compound in conjunction with the claimed cyclosiloxane.

Response to Arguments

Applicant's arguments in the Appeal Brief have been considered but are moot in view of the new ground(s) of rejection.

It is argued that Miller/Schwarz/Hyde/'145 combination is improper because there is no suggestion in Schwarz that the material can be built up on a support. There is no reason why Schwarz has to supply the teaching: Miller, Hyde and '145 each show the likelihood of success. One of ordinary skill looking at all of the references would instantly recognize that such is the mere substitution of one silicon compound for another, and would see the likelihood of success. To show no likelihood of success, Applicant refers to a declaration to show that under fuel-rich conditions (specifically, at least 2.67 times more fuel !!!) carbon is generated. This is irrelevant because one of ordinary skill would not use such a fuel-rich environment. There is no disclosure in any of the present references to use a fuel-rich environment. Routine optimization of the gas quantities used would clearly prevent excess carbon - '145 teaches that clear glass is possible with a siloxane.

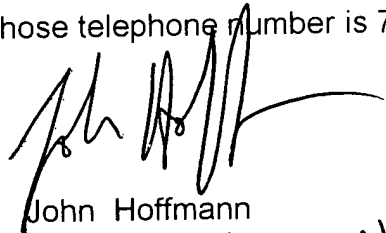
One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is 703-308-0469. The examiner can normally be reached on Monday, Tuesday, Wednesday, Thursday, Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7115 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


John Hoffmann
Primary Examiner
Art Unit 1731

10 Nov 2001

jmh
November 10, 2001